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Research Article

Taxonomy, distribution and host plants of some southern European and North African Sawflies (Hymenoptera, Symphyta)

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Abstract

New taxonomic, biological and faunistic data are presented for some species of sawflies occurring in southern Europe and North Africa. *Pamphilius mediterraneus* **sp. nov.** is described from Italy (Sicily). It belongs to the *alternans* sub-group of the *alternans* species group. *Pristiphora omalos* **sp. nov.** is described from Greece (Crete). It belongs to the *depressa* species group. New junior synonyms are *Calameuta tazzekae* Lacourt, 1991 of *Calameuta gaullei* (Konow, 1896), and *Emphytus leucostomus* Costa, 1890 of *Allantus cingulatus* (Scopoli, 1763). *Periclista rufiventris* Zombori, 1979 is moved from the subgenus *Periclista* to the subgenus *Neocharactus*. *Ametastegia* (*Protemphytus*) *persica* Khayrandish, Talebi & Blank, 2015 is recorded for the first time in Europe, from Italy (Sicily), and a key to West Palaearctic *Protemphytus* species provided. *Allantus enslini* (Forsius, 1918) is more widespread in southern Europe than previously recorded. An identification key distinguishes it from its closer West Palaearctic relatives. New hostplant records are for *Halidamia affinis* (Fallén, 1807) (*Rubia peregrina*), *Janus compressus* (Fabricius, 1793) (*Sorbus torminalis*), and *Macrophya albicincta* (Schrank, 1776) (*Centranthus ruber*). New distribution records are given for a few other species.

Key Words

Argidae, Cephidae, distribution, host plants, Pamphiliidae, Tenthredinidae, taxonomy

Introduction

Studies on West Palaearctic sawflies have, from their beginning, concentrated on the fauna of central and western Europe. At first, the studied fauna was mostly that of the territories which enjoyed the wealth generated by industrial and commercial development. During the 19th Century, a greater amount of leisure time was enjoyed by increasing numbers of people, and the burgeoning railway network enabled them to travel more easily than previously. From about the middle of the century onwards, many entomologists extended their studies and collection activity to more peripheral regions, particularly the Mediterranean. However, partly because of the valid perception that the sawfly fauna of North Africa and southern Europe is relatively poor in species compared to more northern regions, the study of this insect group in these territories has remained somewhat neglected. Notable exceptions are Morocco, where Jean Lacourt undertook numerous expeditions and obtained extensive material on which he based many taxonomic and faunistic papers (see Schedl 2014), and several of the Mediterranean islands, e.g. Cyprus (Liston and Jacobs 2012), Sicily (Liston et al. 2013), and Crete (Liston et al. 2015). Here, in a minor way, I contribute towards redressing this bias by presenting new results on some species which occur in southern Europe or North Africa.

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Material and methods

General morphological terminology follows Viitasaari (2002a). Some specialized terminology for the sutures and crests on the head of *Pamphilius* follows Shinohara (2002). Body lengths were measured from the most anterior point on the head capsule to the most posterior point on an abdominal tergum or sternum, excluding parts of the ovipositor or male genitalia. Antennomeres were measured in lateral view along the midline.

DNA barcoding refers to sequencing of the part of the COI gene of mitochondrial DNA which is designated as the standard barcode region for the animal kingdom (Hebert et al. 2003). Use of the Barcode Index Number (BIN) as employed by BOLD Systems is explained by Ratnasingham and Hebert (2013).

Stacks of images at successively lower planes of focus were taken mostly with a Leica DFC450 camera through Leica Z6 APO and Olympus BX51 microscopes, and combined to single images using the software HELICON FOCUS 8.1.1.

Abbreviations of names of collections in which material examined is deposited:

DEIEJ Collection of Ewald Jansen, Leipzig, Germany;
FMNH Finnish Museum of Natural History, Helsinki, Finland;
MCSN Museo Civico di Storia Naturale "Giacomo Doria", Genova, Italy;
SDEI Senckenberg Deutsches Entomologisches Institut, Müncheberg, Germany;
ZSM Zoologische Staatssammlung (SNSB), Munich, Germany.

Results

A new species of *Pamphilius* from the Mediterranean Region (Pamphiliidae)

***Pamphilius mediterraneus* sp. nov.**

https://zoobank.org/0B4CEBA2-A868-4C5D-977D-8ED9528B4474
Fig. 1

Pamphilius ignymontiensis: Liston et al. 2013, misidentification.

Type locality. Italy, Sicily, 3 km east of Gratteri, approximately 800 m above sea-level, 37.968°N, 14.001°E [the coordinates on the data label are rounded, whereas these are more precise: uncertainty 150 m. The coordinates on the label locate a spot on the other side of the public road, in an area with significantly less tree cover]. Mixed broadleaved woodland. Collection data: 21.05.2010, by sweeping, A. Liston leg.

Type specimen. ***Holotype*** ♀ (DEI-GISHym11123). Labels: "SICILY: 21.05.2010 Gratteri ca. 3 km NE (ca. 800 m) (37,97°N 14,00°E) leg. A. Liston", "DEI-GISHym11123", "Pamphilius ignymontiensis Lacourt det. A. Liston 2010", "DEI-GISHym 11123 ii/2013 Pamphilius ignymontiensis BASYM466-11 COI: 658 [0n] BIN:ABA1652" [blue], "Pamphilius mediterraneus sp. n. ♀ det. A. Liston 2023" [red], deposited in SDEI.

Description. Head black (Fig. 1C, D): pale are palpi, mandibles, clypeus, gena (partly), most of frons (but divided by a dark vertical stripe medially), a small oblique fleck on rear of postocular area (Fig. 1B, C, E). Antenna (Fig. 1B–E): scape pale, pedicel slightly darker, flagellum progressively darkened towards apex. Thorax black (Fig. 1A, B): pale (whitish) are tegula, mesoscutellum (without appendage), metascutellum, upper edges and lowermost part of pronotum (Fig. 1A, B). Legs pale yellowish (Fig. 1A, B) except for black bases of coxae (Fig. 1F). Veins of forewing pale to about half length of wing from base, apically dark; pterostigma yellow brown, anterior slightly darker (Fig. 1A). Abdomen (Fig. 1A, F): tergum 1 mainly black except for very narrow white antero-lateral margin. Terga 2–5 entirely reddish-yellow. Tergum 6 largely black; anteriorly and laterally partly reddish-yellow. Tergum 7 black with small, pale antero-lateral fleck. Tergum 8 black. Tergum 10 basally dark, apically pale. Sterna pale except for 7 with small triangular baso-medial black marking (Fig. 1F). Cerci (Fig. 1F) and sawsheath pale, except for dark setae and peg on valvula 3 (Fig. 1G).

Upper head (Fig. 1C) largely glabrous; length and density of setae increasing towards the outer orbits; punctures shallow and very widely spaced; frontal crest moderately protruding, in dorsal view subtriangular; facial crests weakly protruding to about half height of frontal crest. Head below transverse sutures (Fig. 1D) moderately setose with diffuse shallow punctation, except for glabrous and impunctate paraantennal field; longest setae slightly longer than diameter of an ocellus; face below lateral transverse sutures slightly transversely corrugated down to level of lower edge of ocellar basin; clypeus densely punctate; frontoclypeal crest scarcely developed. Antenna (Fig. 1E): 21 antennomeres, scape 3.8 × as long as apical width, 2.55 × as long as pedicel; flagellomere 1 about 1.1 × as long as scape, 2.3 × as long as flagellomere 2. Fore wing cell C entirely setose. Medial mesoscutal lobe glabrous, without punctation; lateral lobes medially glabrous and impunctate; moderately setose and weakly punctate laterally (Fig. 1A). Mesepisternum (Fig. 1B) sparsely and shallowly punctate with adpressed setae about as long as diameter of ocellus; narrow glabrous impunctate stripe on lowest third. Inner tooth of claw slightly shorter than outer. Valvula 3 (Fig. 1G) with dense apical fringe of dark setae; valvular peg conical, dark like setae, markedly shorter than longest setae. Terga 1–5 sculptured; sculpture less strong towards posterior of abdomen; distal terga nearly unsculptured.

Length: 8.5 mm.

Male. Unknown.

Etymology. the species name, an adjective, relates to the Mediterranean Sea and its lands.

Figure 1. *Pamphilius mediterraneus* sp. nov. holotype ♀ (DEI-GISHym11123): **A, B.** Complete; **C–E.** Head; **F.** Abdomen ventral; **G.** Valvula 3 lateral, peg arrowed. Scale bars: 1 mm.

Host plant. Unknown. However, one or more *Acer* species are probably hosts of *P. mediterraneus*, as for its closest relatives, such as *P. ignymontiensis* and *P. aurantiacus*. Both *Acer campestre* and *A. monspessulanum* occur at the type locality.

Genetic data. in BOLD Systems the COI barcode sequence of the *P. mediterraneus* holotype is the only specimen in BIN BOLD:ABA1652. Three German specimens of *P. aurantiacus* with identical barcodes comprise BOLD:ABA1650. One German male

P. aurantiacus comprises BOLD:ABV8260, and one Swiss male BOLD:ABV8261. The minimum divergence between *P. mediterraneus* and *P. aurantiacus* (BINs BOLD:ABA1650 and BOLD:ABV8260) is about 2.4%. Sequences (not in BOLD) of two *P. ignymontiensis* specimens (DEI-GISHym81330, DEI-GISHym89949) diverge slightly more from *P. mediterraneus*, by respectively approximately 2.5–2.6%.

Diagnosis. *Pamphilius mediterraneus* belongs to the *alternans* sub-group of the *alternans* species group, as defined by Shinohara (2002). All members of this species sub-group are West Palaearctic. In the key to species (females) of the sub-group by Shinohara (1991), *P. mediterraneus* runs to couplet 8, but does not fit either alternative, because whereas its head is largely black, abdominal sternum 6 is mostly pale. In the key to European species (females) by Viitasaari (2002b) it runs to couplet 18 containing *P. aurantiacus* and *P. ignymontiensis* but does not fit the combination of characters for either of the species. It is closer to *P. aurantiacus* in lacking a pale stripe from compound eye to posterior border of head, but differs in its very smooth postocular area (densely and rather deeply punctate in *P. aurantiacus*). The nearly entirely pale abdominal sterna of *P. mediterraneus* separate it from both *P. aurantiacus* and *P. ignymontiensis*, with several sterna extensively dark. The single *P. mediterraneus* specimen is similar in size to *P. ignymontiensis* females, i.e. smaller than *P. aurantiacus*. Differences are summarized in the following key.

Key to European species resembling *Pamphilius aurantiacus*

1	Female	**2**
–	Male	**4**
2	Posterior of upper head with a pair of pale markings, but these not connected to the edge of the eye by a pale marking (Figs 1C, 2A). Terga 2–5 entirely pale (Fig. 1A). Peg on valvula 3 inconspicuous: shorter than longest setae on apical edge of valvula (Figs 1G, 2C)	**3**
–	A pale marking runs across the upper head from hind margin of head to the inner top of the eye (Fig. 2E). At least base of tergum 2 black-lined; lateral margins of terga 3–5 often black-marked (Fig. 2G). Peg on valvula 3 conspicuous: as long as longest setae on apical edge of valvula (Fig. 2D). [Abdominal sternum 6 with basal black band; sternum 7 black apart for pale medio-apical fleck (Fig. 2F). Vertex with few, scattered punctures (Fig. 2E). Body length 8.5–10.0 mm] ***Pamphilius ignymontiensis* Lacourt, 1973**	
3	Underside of apex of abdomen mainly black (Fig. 2B). Upper inner orbits pale-lined next to eye (Fig. 2A). Vertex with many deep punctures (Fig. 2A). Body length 10–13 mm ***Pamphilius aurantiacus* (Giraud, 1857)**	
–	Underside of apex of abdomen mainly pale (Fig. 1F). Upper inner orbits completely black (Fig. 1C, D). Vertex with few shallow punctures (Fig. 1C). Body length 8.5 mm ***Pamphilius mediterraneus* sp. nov.**	
4	Upper head densely punctate (Fig. 3A). Abdominal tergum 4 basally dark medially with separate lateral black flecks; tergum 5 only with lateral basal flecks; harpe pale or with only a small dark basal fleck (Fig. 3B). Body length 9–11 mm ***Pamphilius aurantiacus* (Giraud, 1857)**	
–	Upper head sparsely punctate (Fig. 3C). Abdominal terga 4 and 5 basally nearly continuously dark; basal half of harpe dark (Fig. 3D). Body length 7.5–9.5 mm ***Pamphilius ignymontiensis* Lacourt, 1973**	

Material of *P. aurantiacus* and *P. ignymontiensis* examined [detailed data given only for specimens figured, or referred to in the text]

P. aurantiacus

Germany: Bavaria: 1♂ (BC ZSM HYM 09417), Neumarkt in der Oberpfalz, 421 m, 49.282°N, 11.457°E, 06.05.2011, J. Hable leg. (ZSM). Mecklenburg-Vorpommern: 1♀ (DEI-GISHym18896), Ranzin, Park, 53.950°N, 13.530°E, 03.06.2005, H.-J. Jacobs leg. (SDEI); 1♀ (DEI-GISHym11119) as preceding but 26.05.2005; 1♀ (DEI-GISHym17760), Gross Kiesow, 54.017°N, 13.483°E, 26.05.2007, H.-J. Jacobs leg. (SDEI). Sachsen-Anhalt: 1♀ (DEI-GISHym17758), 1♂ (DEI-GISHym17759) Rottleberode, Krebsbach am Gipswerk - GS4a RW, 51.517°N, 10.933°E, 07.05–20.05.2001, yellow pan trap, E. Stolle leg. (SDEI). Switzerland: 1♂ (BC ZSM HYM 10986), Zug, Unteraegeri, Hoeli, 925 m, 47.140°N, 8.699°E, 17.05.2005, B. Peter leg. Germany, Italy, Switzerland (SDEI): 16♀, 1♂ (SDEI).

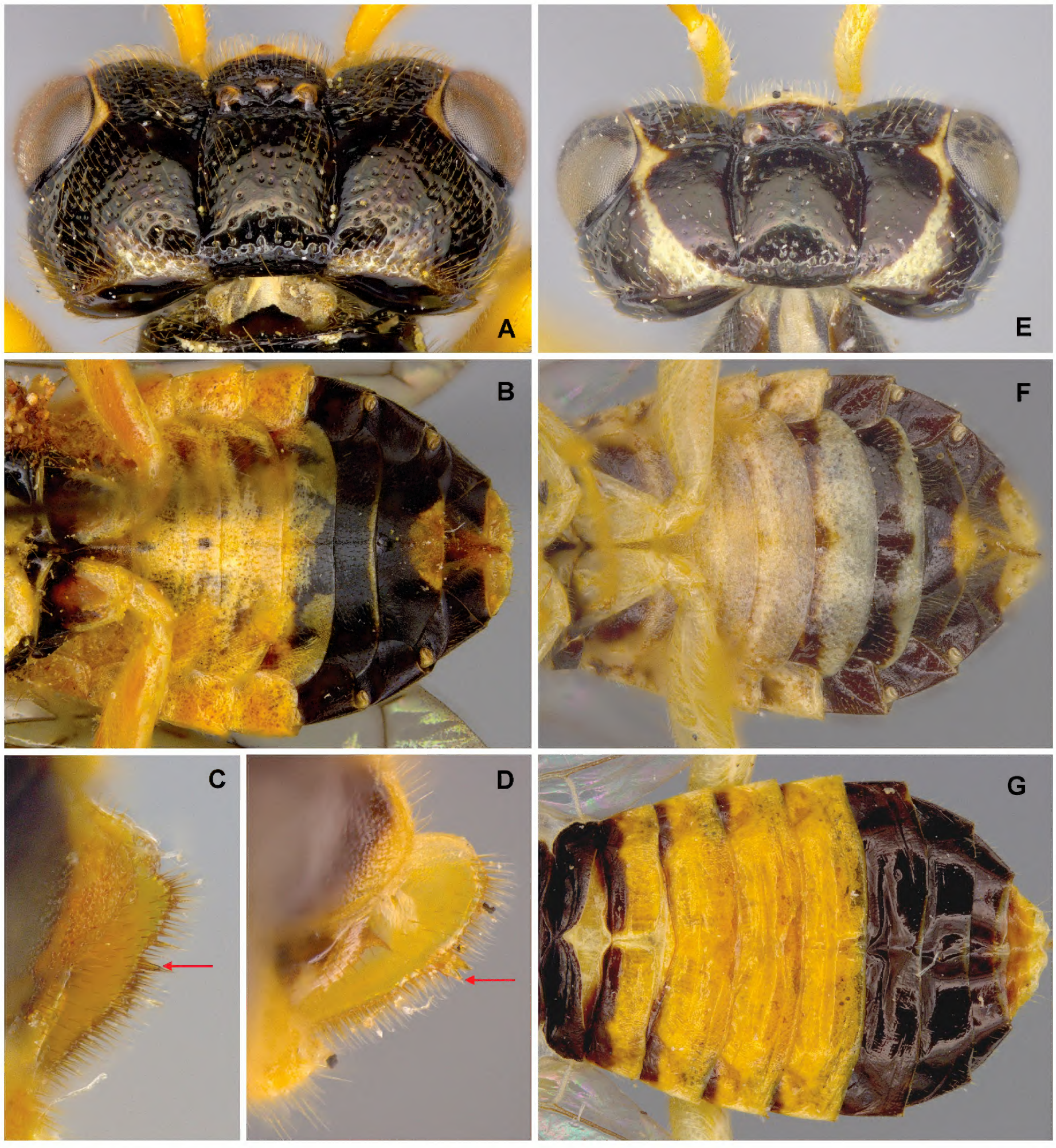

Figure 2. *Pamphilius* species ♀: **A–C.** *P. aurantiacus* (DEI-GISHym18896). **A.** Head dorsal; **B.** Abdomen ventral; **C.** Valvula 3 lateral, peg arrowed; **D–G.** *P. ignymontiensis* (DEI-GISHym81395); **D.** Valvula 3 lateral, peg arrowed; **E.** Head dorsal; **F.** Abdomen ventral; **G.** Abdomen dorsal.

P. ignymontiensis

Austria: 1♀, ex Coll. Konow (SDEI). Bulgaria: 1 larva (DEI-GISHym81330), Rila Monastery, 1147 m, 42.133°N, 23.340°E, on *Acer platanoides*, 18.08.2022, A. Liston leg. France: 1♀ (DEI-GISHym81395; paratype), Val d'Oise, Montigny-lès-Cormeilles, 07.05.1970, J. Lacourt leg. (SDEI); 1♂ (DEI-GISHym81396; paratype), data as preceding, but 01.05.1968. Germany: 1♂ (DEI-GISHym81397), Bavaria, Weigenheim, 21.05.1992, A. Taeger leg. (SDEI). 1♀ (DEI-GISHym89949), Thüringen, Ilfeld: Netzkater: Brandesbachtal, 350–400 m, 51.600°N, 10.810°E, 27.05.2019, 23rd Symphyta Workshop leg. (SDEI). "Hungaria": 1♂, ex Coll. Konow (SDEI).

A new species of *Pristiphora* from Crete (Tenthredinidae)

The single known specimen of this species was incompletely described and discussed by Liston et al. (2015), but was not named. To facilitate its inclusion in future studies on the *Pristiphora depressa* species group, it is formally described below as a new species.

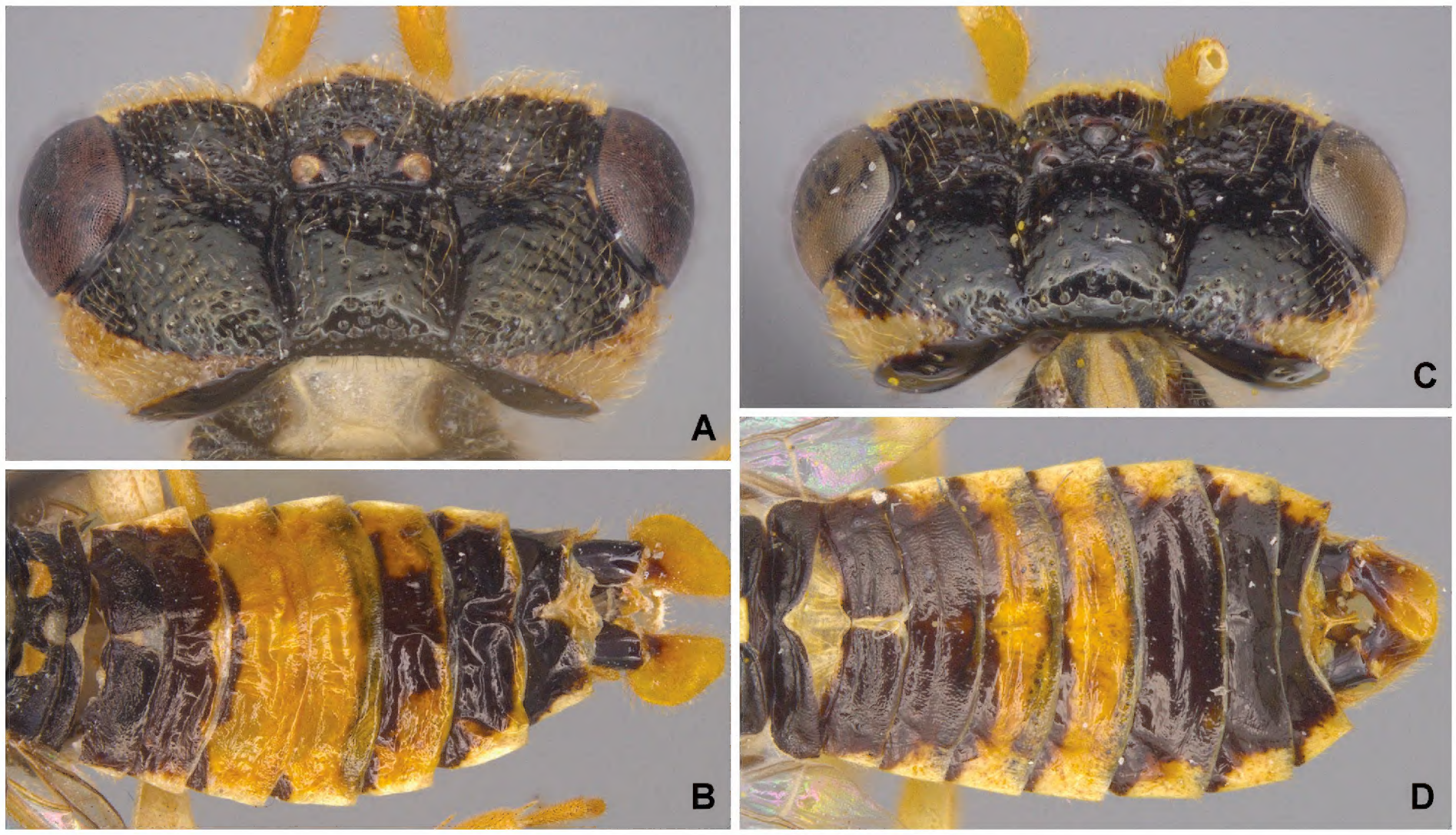

Figure 3. *Pamphilius* species ♂: **A, B.** *P. aurantiacus* (DEI-GISHym17759); **A.** Head dorsal; **B.** Abdomen dorsal; **C, D.** *P. ignymontiensis* (DEI-GISHym81396); **C** Head dorsal; **D.** Abdomen dorsal.

***Pristiphora omalos* sp. nov.**

https://zoobank.org/864E56D9-14A0-4D53-89DB-8F200475A84D

Figs 4, 5A

Pristiphora sp. [subbifida group]: Liston et al. 2015.

Type locality. Greece, Crete, Chania Prefecture, Omalos Plateau, 35.322°N, 23.913°E, approximately 1100 m above sea-level. Open stand of *Acer sempervirens* and *Zelkova abelicea* with regeneration on foot of west-facing hill slope. Collection data: 21.04.2013, by sweeping, A. Liston & M. Prous leg.

Type specimen. ***Holotype*** ♂ (DEI-GISHym20661), pinned, with genitalia gummed to a card below specimen. Labels: "Greece, Crete, Omalos 35.322°N, 23.913°E alt. 1100 m 21-IV-2013 A. Liston & M. Prous leg." [Chania Prefecture, Omalos Plateau], "DEI-GISHym20661", "Holotype *Pristiphora omalos* sp. n. ♂ det. A. Liston 2023" [red], deposited in the SDEI.

Description. Head (Fig. 4C, D) black. Mouthparts partly dark brown. Outer orbits narrowly pale (orange-brown). Antennal flagellum slightly brown ventrally towards tip (Fig. 4G). Thorax black (Fig. 4B, E, F); cenchri pale. Legs pale; coxae black except distal parts; small black markings on trochanters, trochantelli, and bases of fore- and mid-femora (Fig. 4B, F, H). Tip of metabasitarsus and following tarsomeres slightly darkened (Fig. 4H). Wing veins including forewing costa and stigma dark brown (Fig. 4A). Abdomen (Fig. 4A, J) yellow-orange; tergum 1 and base of tergum 2 medially black; cerci brown.

Antenna (Fig. 4G) longer than fore wing costa (1.2:1.0). Antennomere 3 about 3.4 × as long as apical width; relative lengths of antennomeres 3–9 as 100: 90: 84: 74: 65: 62: 58. Inner tooth of claw about half as long as outer tooth (Fig. 4I). Abdominal terga finely reticulately sculptured. Abdominal tergum 8 basally carinate; procidentia raised, subtriangular (Fig. 4J). Penis valve (Fig. 5A): valvispina medially thickened and not strongly upcurved; apex of valviceps narrows distally from base of valvispina.

Length: 4.5 mm.

Female. Unknown.

Etymology. the species name is a noun in the nominative singular; the name of the plateau on which the holotype was collected.

Host plant. the holotype was collected, together with specimens of *Pristiphora cretica* Schedl, 1981 and *P. tetrica* (Zaddach [in Brischke], 1883), by sweeping *Acer sempervirens* growing mixed with *Zelkova abelicea*. Probably *A. sempervirens* is the host, because all hosts so far recorded for the *Pristiphora depressa* group are *Acer* spp. and this is the only *Acer* species occurring in Crete.

Genetic data. the COI barcode sequence of the *P. omalos* holotype diverges by about 4.8% from its nearest neighbour, *P. tetrica* from Sicily (DEI-GISHym10972). Divergence from two Cretan *P. tetrica* is approximately 5.3% and from *P. schedli* Liston & Späth, 2008 (Cyprus) approximately 8.6%.

Diagnosis. in the key to West Palaearctic species of the *Pristiphora depressa* group by Liston and Prous (2020), *P. omalos* sp. nov. runs to *P. tetrica*. Externally, the only clear difference is that most of the metabasitarsus and the tip of the metatibia are pale in *P. omalos*, but black-marked in *P. tetrica*. However, the penis valve of *P. tetrica* (Fig. 5B) is very different from that

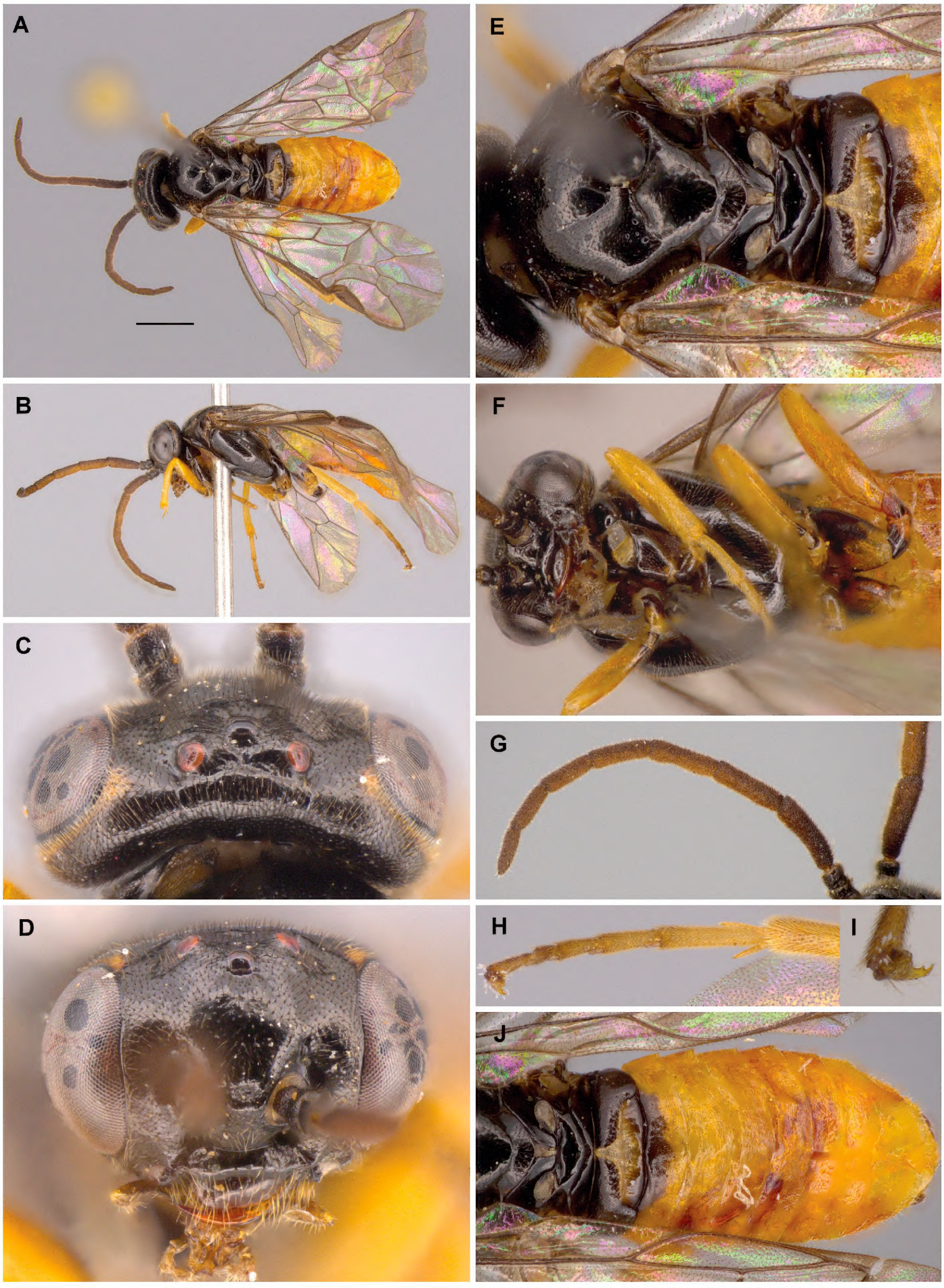

Figure 4. *Pristiphora omalos* sp. nov. holotype ♂ (DEI-GISHym20661): **A, B.** Complete; **C, D.** Head; **E.** Thorax dorsal; **F.** Head and thorax ventral; **G.** Antenna; **H.** Metatarsus and tip of metatibia; **I.** Metatarsal claw; **J.** Abdomen dorsal. Scale bar: 1 mm.

of *P. omalos* (Fig. 5A), both in the shape of the valviceps and the valvispina. In *P. tetrica* and other *depressa* group species, apart from *P. omalos* and *P. schedli*, the valvispina is not medially thickened, and is usually more strongly upcurved. Although the penis valve of *P. omalos* resembles that of *P. schedli* (Fig. 5C) in the shape of the valvispina, the valviceps is very differently shaped. Also similar to *P. schedli* is the small inner tooth of the

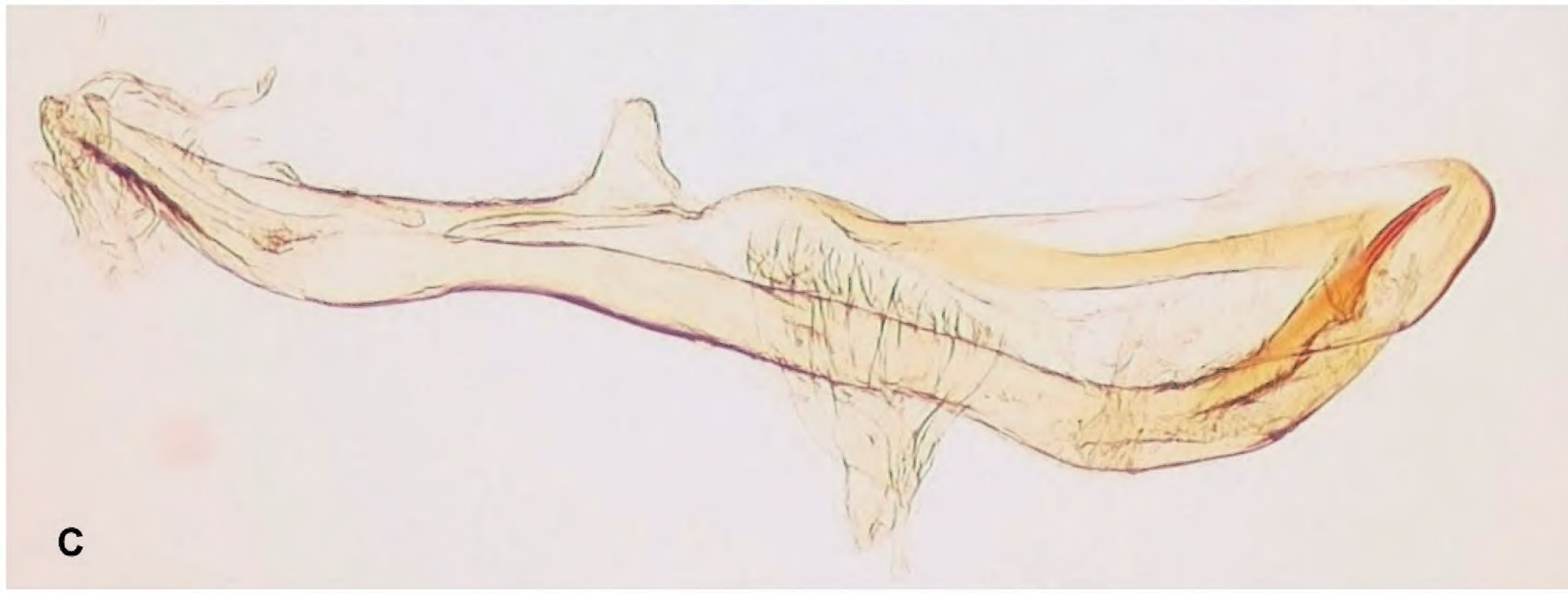

Figure 5. *Pristiphora depressa* species group penis valves. **A.** *P. omalos* sp. nov. Holotype (DEI-GISHym20661); **B.** *P. tetrica* (DEI-GISHym21204); **C.** *P. schedli* (DEI-GISHym5036).

claw of *P. omalos*: the claw of all other West Palaearctic species of the *depressa* group is bifid or subbifid. Differences in colour pattern between *P. schedli* and *P. omalos* may also be significant: the clypeus, labrum and pronotum of *P. schedli* are largely pale (dark brown or black in *P. omalos*), and the abdominal terga of *P. schedli* males bear several medial black markings, at least on terga 1–3 and 7–8 (only terga 1 and 2 black-marked in *P. omalos*), and the metatarsus and tip of metatibia are extensively black (metabasitarsus largely pale and metatibia completely pale in *P. omalos*). While *P. tetrica* has a wide West Palaearctic distribution, *P. schedli* has not yet been recorded outside Cyprus.

Material of *P. tetrica* and *P. schedli* examined [detailed data given only for specimens figured, or referred to in the text]

Pristiphora tetrica

Greece: 1♂ (DEI-GISHym21204), Crete, Livadia, 395 m, 35.304°N, 24.808°E, 29.03.2013, A. Liston leg. (SDEI). Italy: 1♀ (DEI-GISHym10972), Sicily, Parco dei Nebrodi, Portella femmina morta, Cesarò ca. 10 km NW, 1500 m, 37.910°N, 14.650°E, 19.05.2010, A. Liston leg. (SDEI). France, Germany, Greece, Morocco, Spain, Switzerland: 40♀, 32♂ (SDEI).

Pristiphora schedli

Cyprus: 1♂ (DEI-GISHym5036: paratype), Pano Platres, 1100 m, 34.883°N, 32.867°E, 21.04.2006, J. Späth leg. (SDEI); Cyprus: 3♀, 11♂ (Liston and Späth 2008; Liston and Jacobs 2012).

New synonyms

Calameuta gaullei (Konow, 1896) (Cephidae)

Cephus gaullei Konow, 1896: 317–318. Syntypes, 1♀, 1♂ ["ein Pärchen"]. Lectotype designated by Muche (1981). Type locality: Algeria, Affreville.

Calameuta tazzekae Lacourt, 1991: 282. Holotype, ♂. Type locality: Morocco, Moyen-Atlas, Massif du Jbel Tazzeka, Bab Bou Idir. New synonym.

Material examined. ***Lectotype*** ♀ *Cephus gaullei* (GBIF-GISHym4457) [badly damaged: abdomen detached and glued to data label; missing are antennal flagella; left wings apart from bases; right mid leg, and left from about middle of femur; left rear leg; right tarsus]: Algeria, Affreville, 7.5.[18]95 (SDEI). ***Paralectotype*** ♂ (DEI-GISHym81394) [only thorax, middle legs and left wings remain]: Algeria, Teniet el Haad, 10.5.[18]95 (SDEI). ***Holotype*** ♂ *Calameuta tazzekae* (GBIF-GISHym31701), Fig. 6: Morocco, Bab Bou Idir, 5.6.1972, J. Lacourt leg. (private collection of J. Lacourt, now held by Thierry Noblecourt). Morocco: 1♀, 1♂, Atlas maior, Arround, 9–12.6.[19]26, Lindberg leg. (FMNH); both specimens determined as *Cephus gaullei* by R. Forsius (Forsius 1930).

Calameuta tazzekae is only known from the holotype. In the original description, Lacourt compared it with *C. pygmaea* (Poda, 1761). Although he mentioned in the same paper the presence of *C. gaullei* in North Africa, albeit only from Algeria, he did not compare it with his newly described species. The description of the male of *C. gaullei* by Konow (1896) agrees very closely with that of *C. tazzekae*, except for two characters. Konow wrote that abdominal tergum 2 of the male is black, whereas it is only basally black in the holotype of *C. tazzekae* (Fig. 6A, B) and the other Moroccan male examined (from Arround), and according to Konow the face of the male of *C. gaullei* is entirely black, whereas the face of *C. tazzekae* has small yellow flecks: one on the supraclypeal area and a pair on the inner orbits (Fig. 6C). The face of the male from Arround is completely black. The colour pattern of the middle legs of the *C. gaullei* types is not entirely clear from Konow's description, but this is very similar in the *C. gaullei* paralectotype, the *C. tazzekae* holotype, and the specimens from Arround. In my opinion, the small colour differences between *C. gaullei* and *C. tazzekae* fall within the range of variability of a single taxon, and they should be treated as conspecific. Lacourt (2020a, b) has already tentatively placed *C. tazzekae* as a synonym of *C. gaullei*.

Allantus (*Emphytus*) *cingulatus* (Scopoli, 1763) (Tenthredinidae)

Tenthredo cingulata Scopoli, 1763: 277. Syntypes [assumed: probably lost or destroyed], sex not stated. Type locality: "Ruri degit" [in the countryside; presumably of Carniola (now part of Slovenia)]

Emphytus leucostomus Costa, 1890: 6–7. 2♂ syntypes [Perhaps in the Zoological Museum of the University of Naples: not examined]. Type locality: Graecia [Greece]. New synonym.

Notes. Dalla Torre (1894) listed *E. leucostomus* as a valid species, but with a footnote "= ? Ev. togatus Panz.". Konow (1905a) placed it as a definite synonym of *Emphytus togatus*, which was followed by Taeger et al. (2010). Almost certainly, neither Dalla Torre nor Konow had examined the type specimens of *E. leucostomus*. The synonymy by these authors of *E. leucostomus* with *Allantus togatus* is puzzling, because few of the characters mentioned by Costa (mostly coloration) resemble *A. togatus*.

Costa described *E. leucostomus* thus:

[Translated from Latin] "*Black, entire mouth, edges of pronotum, tegulae, cenchri and triangular space on abdominal tergum 1 white; legs white, apical half of the posterior femora, the tibia and tarsi pale red; wings hyaline, costa pale rufous, stigma black with white base, veins fuscous: antennae thick.* ♂. - Length 9 mm".

[Translated from Italian] "Antennae slightly longer than half the body, thick, black. Head black; the lower edge of the clypeus (which is strongly emarginate in the form of an

Figure 6. *Calameuta gaullei* ♂ [holotype of *C. tazzekae*] (DEI-GISHym31701): **A, B.** Complete; **C.** Head frontal. Scale bars: 1 mm.

arc of a circle), the labrum and palpi, white; the outer face of the mandibles white, delicately outlined in black. Thorax black with the upper part of the edges of the pronotum and the cenchri white. Tegulae entirely white. Abdomen slender, parallel, shiny black with a white membranous equilateral triangle in the middle of the first tergum. Legs, including coxae and trochanters, white; the two hind legs with the apical half of the femora, the tibiae and the tarsi pale reddish: tarsi apically darker. Wings transparent, iridescent; the costal vein reddish, the other veins brown; the stigma blackish with a white base. The mid-discoidal vein of the forewings reaches at two-fifths towards the base of the wing the portion of the median vein interposed between the marginal discoidal vein and the first recurrent vein.

Observation. The species it most closely resembles is *E. grossulariae* [*Ametastegia pallipes* (Spinola, 1808)]. And, although this species is subject to variability, which causes discrepancies between the descriptions of even the most accurate writers, yet none of these descriptions squares with the species described here".

In my opinion, Costa's description is not of *Allantus togatus* or one of its closer relatives such as *A. enslini*. Too many characters do not fit: especially the colour of the wing membranes, the abdomen, and the legs. Ghigi (1905), who was able to examine Costa's types, concluded that *Emphytus leucostomus* was a valid species. He found that in morphological characters it resembled *Emphytus rufocinctus* (Retzius, 1783), a species of *Allantus* subgenus *Emphytus*, rather than an *Ametastegia* species. The species which most closely matches the description of *E. leucostomus* is *Allantus cingulatus* (Scopoli, 1763). Both sexes of *A. cingulatus* display significant variability, particularly in the colour of the abdomen and the legs. Several male specimens in the SDEI fit the description of *E. leucostomus* very well, except that even the specimen with the palest legs still has basally black coxae.

The identification and distribution of *Allantus* (*Allantus*) species in Europe (Tenthredinidae)

In Europe, four species of *Allantus* subgenus *Allantus* are currently recognized. Lacourt (2020a, b) provided a key to these, but this will not enable accurate determination of all specimens, because of the highly variable colour pattern of at least three of the species. A further difficulty is caused by the presence of *Allantus enslini* in southern Europe. This species was long thought to occur only in North Africa, but was recorded in Italy (Sicily) by Liston et al. (2013). Recently, it has become clear that *A. enslini* is more widely distributed in southern Europe. The main purposes of this section are to provide a key which reliably separates the species, and to record the presently known range of *A. enslini*. Despite the extreme variability of some species, particularly *A. enslini* and *A. viennensis*, two colour characters are nevertheless considered to be the most practical for identification, i.e. the colour pattern of the upper head and the colour of the postspiracular sclerite.

Allantus enslini Forsius, 1918

Allantus enslini Forsius, 1918: 6–7. Holotype ♀ (Zoological Museum, University of Turku: examined). Type locality: Algeria, Birmandreis [Bir Mourad Raïs]. Lacourt 1989: 299–300; description of male, records from Morocco, adult association with *Salix* species.

Other material examined. Italy: 1♀, Sicily (Liston et al. 2013) (private collection of G.F. Turrisi, Catania).

Morocco: 2♂, Marrakech-Tensift-El Haouz Region, Ourika 5 km SE, 970 m, 31.333°N, 7.757°W, 19.03.2014, A. Liston & M. Prous leg. (SDEI). 1♀ (DEI-GISHym84750), 2♂ (DEI-GISHym20765), same data as previous, but 30.03.2014 (SDEI). All these specimens were swept from *Salix* species.

Portugal: 1♂ (DEI-GISHym84746), Coimbra, Seixo de Beira 7 km S, 360 m, 40.392°N, 7.843°W, 06.05.2012, Blank, Jacobs, Liston & Taeger leg. (SDEI). 1♂ (DEI-GISHym21183), Aveiro, Castelo de Paiva 7 km SSW, 260 m, 41.000°N, 8.278°W, 14.05.2012, Blank, Jacobs, Liston & Taeger leg. (SDEI).

Spain: 1♀ (DEI-GISHym 84745), Girona (GIR), Port della Selva, Vall Sta. Creu, Garrigue, 42.335°N, 3.165°E, 18.06.1993, Y. Gonseth leg. (SDEI). 1♀ (DEI-GISHym31066), Valencia (VAL), Parque Natural de la Sierra Calderona, Serra 1 km N, 400 m, 39.696°N, 0.422°W, 01.05.2014, swept from *Salix purpurea*, Liston, Prous & Taeger leg. (Asian Sawfly Museum, Nanjing). 1♀ (DEI-GISHym31082), data as preceding (SDEI). 1♂, data as preceding, but H.-J. Jacobs leg. (Coll. Jacobs, Ranzin). 1♂ (DEI-GISHym31084), Valencia (VAL), Parque Natural Chera-Sot de Chera, Sot de Chera, 500 m, 39.621°N, 0.907°W, 02.05.2014, Liston, Prous & Taeger leg. (SDEI). 2♂, data as preceding, but H.-J. Jacobs leg. (Coll. Jacobs, Ranzin). 1♂ (DEI-GISHym31083), Valencia (VAL), Parque Natural Serra d'Espadá, Almedijar 2.5 km E, 540 m, 39.875°N, 0.379°W, 06.05.2014, Liston, Prous & Taeger leg. (SDEI). Documentation by photos (det. A. Taeger): 1♀, Barcelona (BAR), Abrera, 41.517°N, 1.859°E, 25.08.2019, photo Jaume Almirall, https://www.inaturalist.org/observations/33654904. 1♀, Almería, 37.107°N, 3.024°W, 07.06.2016, photo faluke, https://www.inaturalist.org/observations/67201786. 1♀, Cataluña, 41.517°N, 1.859°W, 25.08.2019, photo Jaume Almirall, http://www.inaturalist.org/observations/33654904. 1♀, Andalucía, 37.107°N, 3.025°W, 07.06.2016, photo faluke, http://www.inaturalist.org/observations/67201786.

Notes. Lacourt (2020a, b: 236, key couplet 2) wrote in the alternative which leads to *A. enslini* and *A. callibleph-arus* "Head more or less marked with yellow, labrum yellow. Thorax black, more or less marked with yellow on the upper part of the mesopleura". *Allantus enslini* is then characterized: "Thorax with mesonotum entirely black. Fore wings with radial cell entirely smoky suffused. Antennae tri-coloured, the first two segments white, the following brown more or less marked with black, apical segments light brown". This is only partly correct. The antennae of *A. enslini* may be completely black, and the

upper mesopleura are rarely pale-marked, except for the postspiracular sclerite.

The Sicilian specimen (female) is by far the palest of those examined. Pale are the labrum, most of clypeus, lower inner orbit, a broad stripe on outer orbit, hind margin of head including flecks on postocellar area, edges of pronotum, and upper half of mesepisternum. Antennomeres 1 and 2 are whitish, with the flagellum shading from darker to paler brown towards the apex. The darkest specimens are some of those from the Iberian Peninsula. The female DEI-GISHym84745 has, for example, antennomere 1 pale only on the inner side, and antennomere 2 completely dark, clypeus and pronotum entirely dark, and the other pale markings on head much smaller than the Sicilian specimen. Some of the Iberian males, such as DEI-GISHym21183, are even darker, with nearly completely black antennae (Fig. 7K). This is also the only examined specimen of *A. enslini* with completely black inner lower orbits. The Moroccan specimens are intermediate in colour pattern to the Sicilian specimen and those from Iberia. However, in all the Moroccan specimens antennomeres 1 and 2 are completely pale, and the flagellum basally at least partly black and apically more or less brown (Fig. 7J). In effect, colour pattern of the head will not always distinguish *A. enslini* from *A. togatus* (see also below). The Sicilian specimen of *A. enslini* is the only one of those examined which has any part of the mesopleura pale. However, the postspiracular sclerite of all specimens is pale: usually entirely so, but narrowly dark along anterior edge in DEI-GISHym21183. The upper mesepisternum of *A. enslini* is usually a little shinier than in *A. togatus* and *A. calliblepharus*, but the pattern of punctation varies considerably in *A. enslini* from almost contiguous with narrow interspaces, to diffuse with interspaces mostly about 0.5–1.0 × as long as the diameter of a puncture.

Yang et al. (2021) compared the mitochondrial genomes of a German specimen of *A. togatus* with a specimen from Spain (DEI-GISHym31066), found significant differences between these, and concluded that the latter represents an unrecognized "cryptic species". In my opinion, DEI-GISHym31066 is *A. enslini*.

In view of the previous mixing-up of *A. enslini* and *A. togatus*, the distribution of each requires further study, particularly in southern Europe. The female specimen from Sardinia illustrated by Cillo et al. (2018) as *Allantus togatus*, for example, is *A. enslini*, based on the colour of its antennae and abdomen. Apart from the single specimens of *A. enslini* recorded from Sicily and Sardinia, the only other individual belonging to *Allantus* (*Allantus*) which I have seen from Italy (the mainland, Toscana), but only as a photograph, is apparently *A. togatus*. Although there are mentions of *Allantus togatus* from both Spain and Portugal (Dusmet 1949; Llorente Vigil 1983), all specimens so far examined from the Iberian Peninsula are *A. enslini*.

My field observations of adult *A. enslini*, which were swept only from *Salix* species, support the statement by Lacourt (1989) that willows are the hosts of its larvae.

Allantus togatus (Panzer, 1801)

Tenthredo togata Panzer, 1801: 82:12. Syntypes [lost or destroyed]. Type locality: presumably Germany, according to the title of the publication. A full synonymy of other basionyms is given by Taeger et al. (2010).

Material examined [full data given only for specimens figured, or referred to in the text]. Croatia: 1♀, Mali Lug b. Rijeka, 06.07.1985, E. Jansen leg. (DEIEJ). Finland: 1♀ (DEI-GISHym118974), Pajarinmaeki, 62.0746°N, 30.1861°E, 18.06.2021, Liston, Mutanen, Kiljunen & Prous leg. (SDEI). Italy: Toscana, 1 adult (documentation by photo, det. A. Taeger), Provincia di Grosseto, 42.78788°N, 10.96229°E, 01.06.2018, photo Bruno Parisotto, https://www.inaturalist.org/observations/147626789. Germany, Poland, Switzerland: 17♀ 8♂ (SDEI, DEIEJ).

Notes. Similarly to *Allantus viennensis*, variation in coloration has led to the description of a number of "varieties" of *A. togatus*, which are listed as synonyms by Taeger et al. (2010).

Lacourt (2020a, b: 236, Key couplet 2) characterized *Allantus togatus* thus: "Head entirely black. Thorax entirely black except tegulae yellow. Antennae bicoloured, black at the base and light brown at the apex from the 4th segment onwards". Most examined specimens of *A. togatus* have pale markings on the head. Always present, as also in most species of *Allantus* including *Emphytus*, is a small pale fleck next to the eye on the upper inner orbit. Most specimens also have a small fleck on the hind margin of the vertex outside and next to the postocellar furrows, and the interantennal area is frequently also pale-marked. Three males have a yellowish labrum. Only one female has the lower inner orbits narrowly pale-marked. Although there is a tendency towards more extensive and additional pale head markings in *A. enslini* (see above), the paler specimens of *A. togatus* and the darker specimens of *A. enslini* share the same colour pattern. The antenna of all examined female *A. togatus* is basally black and apically more or less brown (Fig. 7L), whereas all but one of the examined males have entirely black antennae. The upper mesepisternum of *A. togatus* is rough (matt), with almost contiguous punctation and very narrow interspaces (much narrower than the width of a puncture). The postspiracular sclerite of all *A. togatus* specimens is entirely black.

Allantus togatus has a wide Palaearctic distribution, through central and northern Europe north to the Stockholm area (Malaise 1931a) and southern Finland, and according to Zhelochovtsev and Zinovjev (1996) east through Siberia to the Russian Far East. Possibly at least some of the East Palaearctic records under the name *A. togatus* really refer to *A. calliblepharus*. Popov (2011), for example, mentioned both species from Yakutia, but that the presence of *A. togatus* was based on previously published records and that he had only seen specimens of *A. calliblepharus* from that region. In the light of the

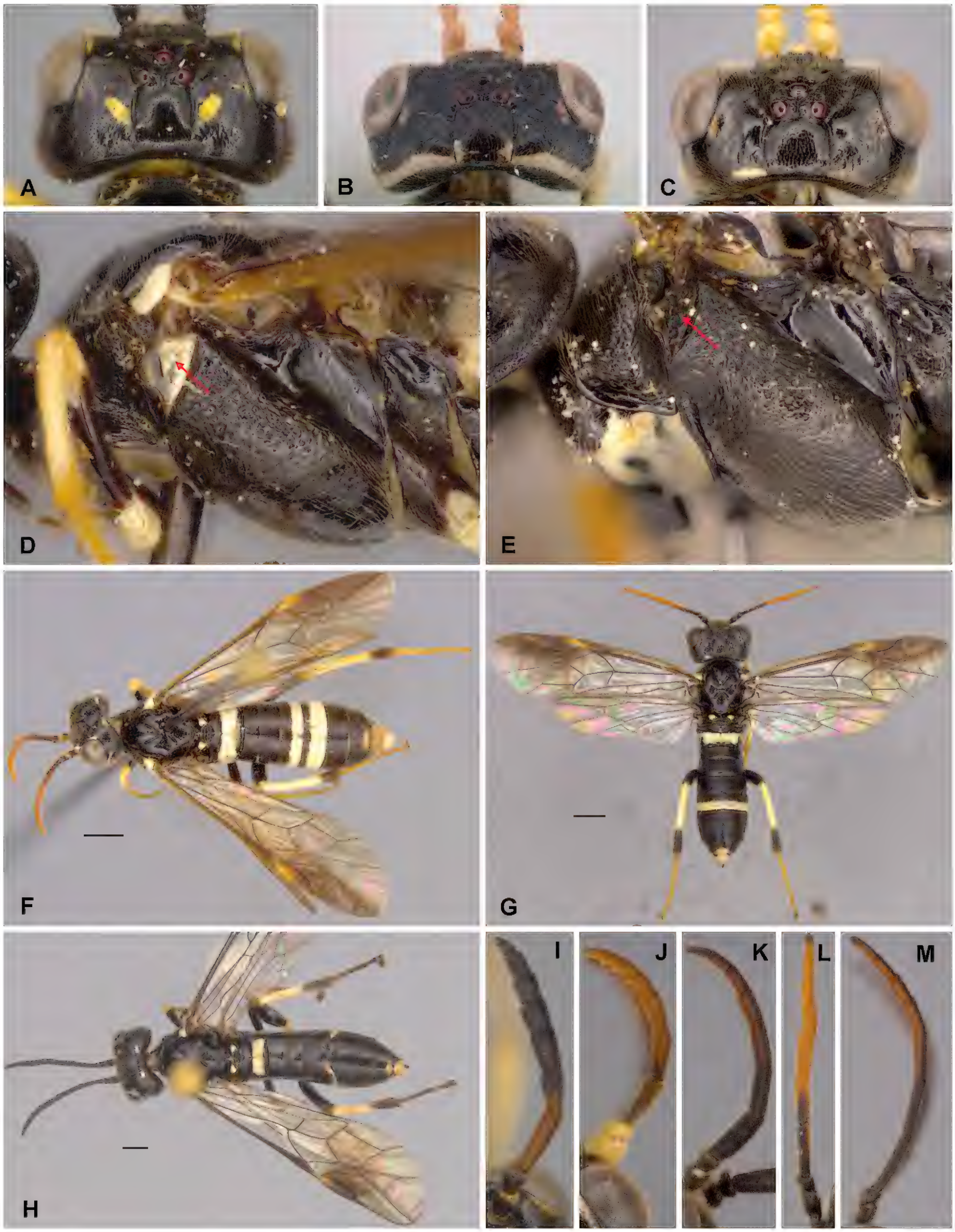

Figure 7. *Allantus* (*Allantus*) species. **A–C.** Head dorsal ♀; **A.** *A. viennensis* (DEI-GISHym81400); **B.** *A. enslini* (Sicily, G.F. Turrisi leg.); **C.** *A. enslini* (DEI-GISHym84750); **D, E.** Thorax lateral ♀, postspiracular sclerite arrowed; **D.** *A. enslini* (DEI-GISHym84745); **E.** *A. togatus* (DEI-GISHym118974); **F–H.** Complete dorsal ♀; **F.** *A. enslini* (DEI-GISHym84745); **G.** *A. togatus* (DEI-GISHym118974); **H.** *A. calliblepharus* (DEI-GISHym84747); **I–M.** Antennae; **I.** *A. viennensis* ♀ (DEI-GISHym81400); **J.** *A. enslini* ♀ (DEI-GISHym84750); **K.** *A. enslini* ♂ (DEI-GISHym21183); **L.** *A. togatus* ♀ (DEI-GISHym118974); **M.** *A. calliblepharus* ♀ (DEI-GISHym84747). Scale bars: 1 mm.

widespread mixing-up of *A. enslini* and *A. togatus*, published records of the latter from southern Europe also need to be re-evaluated. The currently available data (see also under *A. enslini*, above) suggest that these two species might be allopatric, with *A. enslini* replacing *A. togatus* in parts of Mediterranean Europe, such as the Iberian Peninsula, and North Africa. So few specimens from Italy and the Balkans (Croatia) have so far been checked, such that not even a provisional assessment of their ranges in these territories is possible.

Most primary data on the host plants of *A. togatus* name various species of *Salix* (e.g. Lorenz and Kraus 1957; Macek et al. 2020), sometimes *Quercus* (e.g. Pschorn-Walcher and Altenhofer 2000; Macek et al. 2020), and rarely *Populus* (Kangas 1985). Many publications also list *Betula* as a host, but this requires checking. According to Enslin (1914), Dahlbom first recorded *Betula* as a host, which presumably refers to notes published by Dahlbom (1847), who reared adults identified as *Allantus succinctus* from larvae collected on *Betula alba* [= *pendula*] as well as willow leaves.

Allantus viennensis (Schrank, 1781)

Tenthredo viennensis Schrank, 1781: 331–332. Syntypes assumed, sex not stated [probably lost]. Type locality: Austria, Vienna.

Material examined [full data given only for specimens figured, or referred to in the text]. Germany: 1♀ (DEI-GISHym81400), Hessen, Wetzlar, Weinberg, 230 m, 50.539°N, 8.473°E, 13.05.2000, H-J Flügel leg. (SDEI). Bulgaria, France, Germany, Greece: 20♀ 6♂ (SDEI).

Notes. The coloration of this species is highly variable, as described by Enslin (1914). Consequently, this has led to the description of a number of "varieties", listed as synonyms of *A. viennensis* by Taeger et al. (2010). In view of the historical confusion about species limits in *Allantus* sensu stricto, it is reasonable to question whether these names are correctly placed as synonyms of *A. viennensis*. In all cases, the descriptions are inadequate and do not allow a confident determination of the species, while potential type specimens are either unknown or not available for study. On the other hand, the descriptions do not contain characters which unequivocally contradict conspecifity with *A. viennensis*.

Within the range of variability, we observed that the postspiracular sclerite of some *A. viennensis* specimens is pale, as is always so in *A. enslini* (Fig. 7D) but never so in *A. togatus* (Fig. 7E) or *A. calliblepharus*. Paler specimens of *A. viennensis* also resemble *A. enslini* in their rich yellow pattern of the head, but the pair of yellow flecks next to the midpoint of the lateral postocellar furrow are always present in *A. viennensis* (Fig. 7A) and never in *A. enslini* (Fig. 7B, C). Although the antennae of some specimens of both species are tricoloured, particularly the females, the distribution of colour is different: in *A. viennensis* basally yellow, then red-brown, and finally black (Fig. 7I), and in *A. enslini* basally yellow, then black, and apically red-brown (Fig. 7J).

Allantus viennensis is widely distributed in southern and central Europe, east through Turkey to Iran, reaching central Asia (Sundukov 2017), and introduced to North America (Smith 2003). The host plants are *Rosa* species (Scheibelreiter 1973).

Allantus calliblepharus (Konow, 1900)

Emphytus calliblepharus Konow, 1900: 121–122. Syntypes, ♀ [SDEI: 3♀ currently on loan, not examined]. Type locality: Russia, Irkutsk.

Material examined. Russia ?: 1♀ (DEI-GISHym84749), "Gorki" [The only label data. This cannot refer to the Russian city of Nizhny Novgorod, which was only named Gorky from 1932–1990, long after Konow's death in 1908], ex Coll. F. W. Konow (SDEI). Japan, Honshu: 1♀ (DEI-GISHym84747), Nagano, Kayanotaira, 1450 m, 36.840°N, 138.476°E, H. Kojima leg. (SDEI); 1♀ 2♂ (SDEI).

Notes. The "Gorki" female and one Japanese female have very small pale spots on the extreme posterior of the lateral mesoscutal lobes. The mesoscutum of the other specimens is completely black. The punctation and sculpture of the upper mesepisternum closely resembles that of *A. togatus*. Apart from the colour characters given in the key (below) to distinguish *A. togatus* from *A. calliblepharus*, two other characters first mentioned by Konow (1900) have often been given. Firstly, the postocellar area has been said to be as long as broad in *A. togatus* whereas nearly 1.5 × as long as broad in *A. calliblepharus*. The material of *A. calliblepharus* which I have before me is not sufficient to assess this. However, in both *A. enslini* and *A. togatus*, significant variability in this character is apparent: compare Fig. 7B with 7C. Furthermore, a problem is caused by the difficulty in defining the points between which one should measure, particularly the hind margin of the postocellar area, which is not carinate. Although the pale flecks on the rear of the vertex are useful for orientation, part of the perceived "variability" is probably caused by measurement error. Secondly, the antennae of *A. togatus* (Fig. 7L) have been stated to be relatively shorter and thicker than those of *A. calliblepharus* (Fig. 7M). Although there do seem to be differences, at least in the total length of antenna compared to the width of the head, a greater number of specimens of *A. calliblepharus* would be required to check on variability.

Allantus calliblepharus is apparently an eastern species, widely found in West and East Siberia, the Russian Far East, Japan and Korea (Popov 2011; Sundukov 2017), but very rarely recorded in Europe. Most of the few European records are from southern Finland (e.g. Grönblom 1938; Kontuniemi 1947), and one from Russian Karelia (Hellén 1955). Published records of a single female from northern Sweden (Abisko area) by Malaise (1931a, b) may be based on a misidentification of *A. togatus*, because Malaise wrote that this specimen had wing coloration like *A. togatus*,

but a longer postocellar area, as often ascribed to *A. calliblepharus*. The specimen was unfortunately unavailable for re-examination: not located in the Swedish Museum of Natural History, Stockholm (H. Vårdal, pers. comm.).

The host plants of *A. calliblepharus*, according to Zhelochovtsev (1988), are willow species. Perhaps this is based on Verzhutskii (1966), but he only mentions that a single male specimen was collected from *Salix*.

Key to West Palaearctic species of *Allantus* subgenus *Allantus*

1	Antero-apical forewing membrane with dark marking (Fig. 7F–H)	**2**
–	Antero-apical forewing membrane without dark marking	**[*Allantus* subgenus *Emphytus*]**
2	Head from almost completely black to richly pale-marked, but without pale markings touching lateral postocellar furrow at about half-way along its length (Fig. 7B, C, F–H). Flagellum black, or if partly pale then basally black and paler towards tip of flagellum (Fig. 7J–M). Flagellomere 1 about 1.1 × as long as flagellomere 2 (Fig. 7J–M). Uppermost part of mesepisternum at least with some punctures or irregular, coarse sculpture; more or less matt (Fig. 7D, E)	**3**
–	Head variably pale-marked, but always with pale markings touching lateral postocellar furrow at about half-way along its length (Fig. 7A). Flagellum black, or if partly pale then pale from base of antennomere 3 and darker towards tip of flagellum (Fig. 7I). Flagellomere 1 about 1.5 × as long as flagellomere 2 (Fig. 6I). Uppermost part of mesepisternum finely setose but without punctures or sculpture; very shiny	***A. viennensis***
3	Postspiracular sclerite entirely black (Fig. 7E). Abdominal tergum 5 with or without a complete apical pale band, tergum 4 without a complete pale band (Fig. 7G, H). Antennomeres 1 and 2 completely black (Fig. 7L, M)	**4**
–	Postspiracular sclerite mainly or entirely pale (Fig. 7D). Abdominal terga 4 and 5 both with complete apical pale bands (Fig. 7F). Antennomeres 1 and 2 often pale-marked (Fig. 7J)	***A. enslini***
4	Smoky patch on forewing extends to cover the whole of the radial cell (Fig. 7F, G). Tarsi pale red-brown, contrasting with apically blackish tibiae (Fig. 7F, G)	***A. togatus***
–	Smoky patch on forewing only developed below stigma and not extending apically beyond vein 2r-rs (Fig. 7H). Tarsi blackish, like the tips of the tibiae (Fig. 7H)	***A. calliblepharus***

The presence of *Ametastegia persica* in Europe (Tenthredinidae)

The first record of *Ametastegia* (*Protemphytus*) *persica* from Europe is presented below, together with some notes on a little-known North African *Ametastegia* (*Protemphytus*) species, and a key to the West Palaearctic species of the subgenus.

Ametastegia persica Khayrandish, Talebi & Blank, 2015

Fig. 8A–F

Material examined. ITALY: Sicily, 1♂ (DEI-GISHym19001), Gratteri ca. 3 km NE, ca. 800 m, +37.970 +14.000, 21.05.2010, A. Liston leg. (SDEI). Iran [only images seen]: Gilan, 1♀ (DEI-GISHym18098; holotype of *A. persica*), 2♂ (DEI-GISHym18099, DEI-GISHym18614; paratypes of *A. persica*), Rudsar, Rahimabad, Orkom village, 1235 m, 36.762°N, 50.303°E, 17.05.2010, M. Khayrandish leg. (Coll. M. Khayrandish, University of Tehran).

Notes. The Italian specimen was discussed by Liston et al. (2013) as a possibly undescribed species of *Ametastegia* subgenus *Protemphytus*. Later, it was noted that its COI barcode is similar to two Iranian specimens included in BOLD Systems (DEI-GISHym18098, DEI-GISHym18099), differing from these by approximately 3.0–3.5%. Barcodes of these three specimens cluster together, with a minimum distance of 3.4% to the next nearest neighbor, *Ametastegia pallipes* (Spinola, 1808). The barcoded Iranian specimens are the holotype and a paratype of *A. persica*. Compared to other European *Ametastegia* (*Protemphytus*) species, the Sicilian individual has very distinctively coloured hind legs (Fig. 8A, B): the femora and tibiae are extensively red-brown with white bases, and the tarsi blackish, whereas no red-brown colour is found in the other species. The metatibiae of the barcoded Iranian male are extensively red-brown, but the metafemora are basally white and apically black. The other examined male *A. persica* paratype (DEI-GISHym18614) has the darker parts of the hind legs blackish. It seems that leg colour in *A. persica* is very variable, at least in males, although this is not mentioned in the original description. However, among European *Ametastegia* (*Protemphytus*), the pale postspiracular sclerite is apparently unique to *A. persica*, as already noted by Khayrandish et al. (2015). Most existing keys use leg coloration as a major character, but this is not reliable on its own. For example: two females of *A. carpini* in the SDEI from Lower Austria,

Figure 8. *Ametastegia* (*Protemphytus*) species. **A–F.** *A. persica* ♂ (DEI-GISHym19001); **A, B.** Complete; **C, D.** Head and thorax, postspiracular sclerite arrowed; **E.** Head frontal; **F.** Mesoscutellum; **G, H.** *A. armillata* ♀ (DEI-GISHym4106); **G.** Thorax dorsal; **H.** Thorax lateral, postspiracular sclerite arrowed; **I–K.** Mesoscutellum; **I.** *A. armillata* ♀ (DEI-GISHym4106); **J.** *A. pallipes* ♀ (DEI-GISHym11284); **K.** *A. carpini* ♀ (DEI-GISHym81404). Scale bars: 1 mm.

reared from *Geranium robertianum* by E. Altenhofer, have entirely white metafemora, and the metatibiae white except only for the extreme tips. At the other extreme, some male specimens of *A. carpini* have completely black hind legs, and therefore resemble *A. tenera* (Fallén, 1808). To identify the species accurately, it is best to also examine the mesoscutellum and the claws (see the key, below).

Ametastegia persica was previously known only from northern Iran: Gilan and Mazandaran Provinces (Khayrandish et al. 2015).

Ametastegia armillata (Konow, 1905)

Emphytus armillatus Konow, 1905b: 163. Syntypes [assumed] ♀. Type locality: Algeria, Oran.

Protemphytus pallipes Spinola, 1808, var. nov. Benson in litt.: Rungs (1949), misidentification; recorded in Morocco, larva described, biology (host: cultivated *Viola* sp.).

Protemphytus afritus Zombori, 1979: 231–232. Holotype ♀. Type locality: Tunisia. Synonymy by Lacourt (1985).

Material examined. ***Lectotype*** *E. armillatus*. 1♀ (DEI-GISHym4106), Oran. The only known existing former syntype. Oehlke and Wudowenz (1984) referred to this specimen as the "Holotypus". In so doing, they fulfilled the requirements of Article 74.6 of the International Code of Zoological Nomenclature (International Commission on Zoological Nomenclature 1999) and designated this specimen as lectotype. Badly damaged: remaining parts are the thorax, including right fore wing, bases of hind wings, most of fore and mid legs, coxae of hind legs, as well as abdominal tergum 1 and part of 2 (Fig. 8G, H).

Notes. The tegula (Fig. 8G) and postspiracular sclerite (Fig. 8H) are completely black. The mesoscutellum is rather densely punctate, but mostly with the interspaces unsculptured and shiny, except on a small matt postero-medial area where the punctures are nearly contiguous (Fig. 8F).

Recorded only from North Africa (Algeria, Tunisia, Morocco). The male of *A. armillata* is unknown (Lacourt 1985).

Key to species of West Palaearctic *Ametastegia* subgenus *Protemphytus*

1	Fore wing has 3 cubital cells (1st cubital cross-vein missing)	**2**
–	Fore wing has 4 cubital cells (1st cubital cross-vein present)	***Ametastegia* s. g. *Ametastegia*** [see key to species in Lacourt 2020a, b]
2	Abdomen entirely black	**3**
–	Abdominal sternites entirely pale; terga medially more or less pale and laterally black	***A. perla* (Klug, 1818)** [Hosts: *Salix* and *Populus* spp. Other host records need confirmation]
3	Thorax (pronotum, and /or tegulae, and /or postspiracular sclerite) and hind legs (at least base of hind tibia) pale-marked	**6**
–	Thorax and hind legs entirely black	**4**
4	Male	**5**
–	Female. Claw without inner tooth	***A. tenera* (Fallén, 1808)** [Hosts: *Rumex* spp.]
5	Claw without inner tooth	***A. tenera* (Fallén, 1808)**
–	Claw with inner tooth	***A. carpini* (Hartig, 1837)** [Hosts: *Geranium* spp.]
6	Postspiracular sclerite black (Fig. 8H). Hind legs never with red-brown colour	**7**
–	Postspiracular sclerite pale (Fig. 8D). Pronotum pale-edged. Tegula usually at least partly pale. Hind legs of male may be partly red-brown (Fig. 8A, B)	***A. persica* (Khayrandish, Talebi & Blank, 2015)**
7	Tegula pale; pronotum completely black	**8**
–	Tegula black; pronotum pale-edged (Fig. 8G) [Male unknown]	***A. armillata* (Konow, 1905)** [Host: *Viola* sp.]
8	Scutellum punctate and sculptured, matt (Fig. 8J). Hind femur *usually* extensively pale from base, apically more or less dark [Male unknown]	***A. pallipes* (Spinola, 1808)** [Hosts: *Viola* spp.]
–	Scutellum nearly impunctate and largely unsculptured, shiny (Fig. 8K). Hind femur *usually* mostly black, but sometimes even completely pale [Males common]	***A. carpini* (Hartig, 1837)**

Material of other *Ametastegia* species examined [only figured specimens]

Ametastegia carpini

Sweden: 1♀ (DEI-GISHym81404), Norrbotten, Kiruna nr. airport, 450 m, 67.840°N, 20.350°E, 01.07.2012, A Liston & A. Taeger leg. (SDEI).

Ametastegia pallipes

Germany: 1♀ (DEI-GISHym11284), Mecklenburg-Vorpommern, Ranzin, 53.950°N, 13.533°E, 22.05.2000, H-J Jacobs leg. (SDEI).

New host plant and distribution records

Allantus mesatlanticus Lacourt, 1986 (Tenthredinidae)

Material examined. Morocco: Tanger-Tetouan-Al Hoceima, 1♂, Tetouan, Strassenrand [roadside], 35.29943°N, 5.25169°W, 27.02.1992, H.-J. Flügel leg. (SDEI).

Note. Previously only known from the female type specimens collected at Ifrane (Middle Atlas). The coloration of the male closely matches the description of the female (Lacourt 1986).

Aprosthema spec. (Argidae)

Material examined. France: Provence-Alpes-Côte-d'Azur, 1♀ (DEI-GISHym12643), Bargemon, 43.617°N, 6.533°E, 01.07.2019, P. & B. Kan leg. (SDEI); 1♀, photo of oviposition on *Lathyrus latifolius* (Fig. 9C), Callas, 43.355°N, 6.323°E, 14.06.2018, photo by P. & B. Kan [specimen not captured].

Notes. These specimens are remarkable because of their extremely pale coloration (Fig. 9A–C). The colour pattern closely resembles females of *Sterictiphora angelicae* (Panzer, 1799), except that the mesosternum and depressed lateral parts of the metanotum and posterior mesonotum are clearly black in *S. angelicae*. The very different shape of the head in frontal view, one of the clearest characters that separates *Aprosthema* from *Sterictiphora*, can be used to confirm the identity of such specimens. The taxonomy of *Aprosthema* species remains highly chaotic, and it is not currently possible to determine this species, which does not key beyond couplet 4 in the key to European *Aprosthema* by Lacourt (2020a, b).

Athalia rosae (Linnaeus, 1758) (Tenthredinidae)

Material examined. Morocco: Middle Atlas, 1♂, Azrou, 24.6.–2.7.26, Lindberg leg. (FMNH).

Notes. This is the specimen on which is based the only record of *A. rosae* from Morocco, published by Forsius (1930) under *A. colibri* (Christ, 1791). Lacourt (1987) removed *A. rosae* from the list of Moroccan species, because he considered that the specimen was probably misidentified. However, there seems no reason to question the accuracy of the locality data, or the determination. *Athalia rosae* is known to be a migratory species (Benson 1950), which perhaps has occurred occasionally in Morocco, but is no longer found there. Although a few unconfirmed reports of *A. colibri* from Algeria and Tunisia appear in earlier literature, and were repeated for example by Forsius (1930) and Schedl (1983), there seem to be no recent records of *A. rosae* from anywhere in North Africa.

Halidamia affinis (Fallén, 1807) (Tenthredinidae)

Material examined. France: 1 larva (DEI-GISHym111997), Provence-Alpes-Côte-d'Azur, Callas, LFdR, +43.35534, +6.32285, 28.06.2021, feeding on *Rubia peregrina*, P. & B. Kan leg. (SDEI). 3 larvae, same collection data and host plant, except 11.06.2021 (rearing failed).

Notes. *Rubia peregrina* is a new host plant record for *H. affinis*, previously known to feed on several species of *Galium* (Lorenz and Kraus 1957; Batra 1984; Macek et al. 2020). The larvae are solitary and found on the underside of the leaf. At least in the early instars, they feed from the tip of the leaf towards the base, but do not consume the thickened margin (Fig. 9D).

Janus compressus (Fabricius, 1793) (Cephidae)

Material examined. Morocco: Meknes-Tafilalet Region: 1♀, Ifrane 6 km SWW, 1530 m, 33.498°N, 5.167°W, 19.04.2015, A. Liston & M. Prous leg. (SDEI); 12♂, Ifrane 6 km SW, 1600 m, 33.487°N, 5.163°W. 19.04.2015, A. Liston & M. Prous leg. (SDEI).

Notes. At the second locality, all specimens were netted from a single tree of *Sorbus torminalis* (L.) Cr. It is clear that this was being used as a larval host, because numerous fresh oviposition scars were found in fresh shoots, with the apical leaves more or less wilted, as well as emergence holes made by adults. Although *Pyrus* spp. are considered to be the usual hosts of *J. compressus* (Pschorn-Walcher and Altenhofer 2000), *Sorbus aria* has already been recorded as a host (Pschorn-Walcher and Altenhofer 2000), and further sources name *Sorbus aucuparia*, *Prunus spinosa* (Dvorak et al. 2008), *Malus* spp., *Crataegus* spp. (Taeger et al. 1998), and *Cydonia* spp. (Chevin et al. 1999). It seems that *J. compressus* uses a wide spectrum of woody Rosaceae as hosts.

Janus cynosbati (Linnaeus, 1758) (Cephidae)

Material examined. Morocco: Meknes-Tafilalet, 4♂, Khenifra 16 km E, 1500 m, 32.932°N, 5.499°W, 18–21.04.2015, A. Liston & M. Prous leg. (SDEI); Taza-Al Hoceima-Taounate, 3♂, Oued Amlil 18 km SSE, 1470 m, 34.057°N, 4.154°W, 22.04.2015, A. Liston & M. Prous leg. (SDEI). All specimens swept from unidentified *Quercus* species.

Note. As far as I am aware, this is the first record of this widely distributed Palaearctic species from North Africa.

Macrophya albicincta (Schrank, 1776) (Tenthredinidae)

Material examined. Greece: 2♀, 2♂, Sofiko, south of Corinth, 37.794°N, 23.052°E, 21.04.2015, emerged in

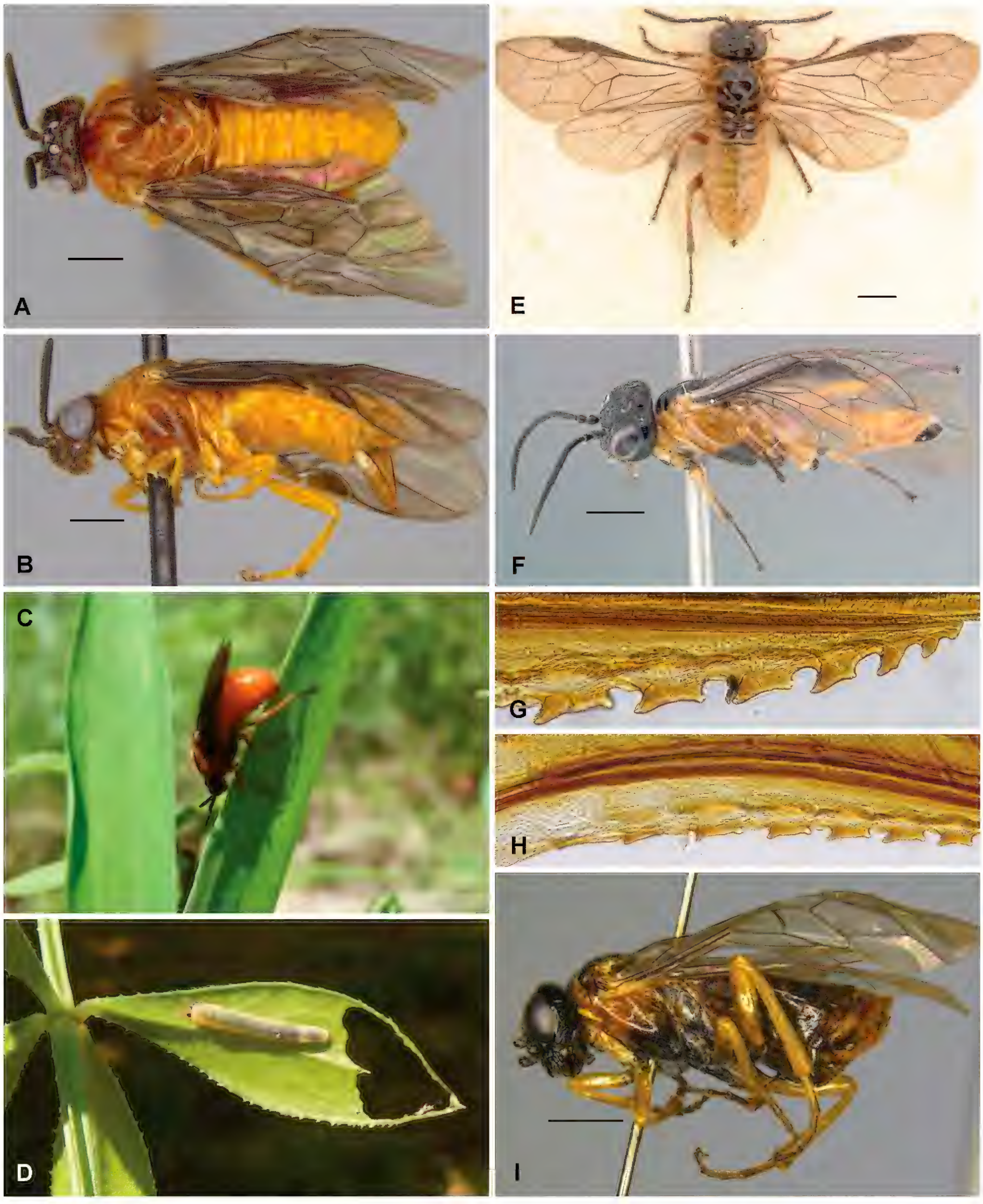

Figure 9. A–C *Aprosthema* spec. ♀. **A, B.** DEI-GISHym12643; **C.** oviposition on *Lathyrus latifolius* [specimen not collected]; **D.** *Halidamia affinis* (DEI-GISHym111997) larva on *Rubia peregrina*; **E–H.** *Periclista rufiventris* ♀; **E.** Holotype (DEI-GISHym19845) dorsal; **F–H.** DEI-GISHym11433; **F.** Lateral; **G.** Lancet tip; **H.** Lancet base; **I.** *Periclista hermonensis* holotype ♀. Scale bars: 1 mm.

February 2016 from larvae collected on *Centranthus ruber* (L.) DC, E. Altenhofer leg. (SDEI).

Notes. *Centranthus ruber* is a new host plant record. In central and northern Europe *Sambucus* species, *Valeriana officinalis* and *Viburnum opulus* have been recorded as hosts of the larvae (Chevin 2009). All these plants belong to the order Dipsacales. However, *Mimulus guttatus* (order Lamiales) has recently been stated to be an additional host (Rotter 2020). Particularly in southern Greece, adults of *M. albicincta* have been collected, sometimes in

large numbers, at localities where the usual hostplants in more northern regions are absent. It seems likely that in the Mediterranean countries, where *Centranthus ruber* is widespread and often abundant, that this is an important host of *M. albicincta*.

Periclista rufiventris Zombori, 1979 (Tenthredinidae)

Periclista rufiventris Zombori, 1979: 235–236. Holotype ♀, paratypes ♀ ♂. Type locality: Lebanon, Hasrun Liban.

Material examined. Lebanon: 1♀ (DEI-GISHym19845; holotype *P. rufiventris*), Hasrun Liban, 1500 m, 34.233°N, 35.983°E, 19.04.1935, W. Wittmer leg. (MCSN). 1♀ (DEI-GISHym19847; paratype *P. rufiventris*), 1♂ (DEI-GISHym19846; paratype *P. rufiventris*), data as preceding (MCSN). Cyprus: Paphos District, 3♀ (including DEI-GISHym11433), 2♂, Kidasi, 34.819°N, 32.712°E, 16–17.04.2011, A. Liston leg. (SDEI).

Notes. Liston and Jacobs (2012) wrote that it was not possible to identify the specimens from Cyprus to species level. Now, after a closer study of the literature and comparison with other specimens, they can be confidently determined as *P. rufiventris*. Liston et al. (2015) have already mentioned that *P. rufiventris* occurs in Cyprus, but did not make it clear that this was based on the above specimens. The record also requires comment on the taxonomy of the species. *Periclista rufiventris* is very similar to *P. hermonensis* D. R. Smith, 1982, described from Israel (holotype examined). Although Lacourt (1999) placed *P. hermonensis* in *Neocharactus*, he treated *P. rufiventris* as belonging to the subgenus *Periclista*, which was followed by Taeger et al. (2010). In fact, both species belong to the subgenus *Neocharactus* MacGillivray, 1908. The holotype of *P. hermonensis* appears to be discoloured: the pale parts have darkened, particularly the abdominal sterna (Fig. 9I), and probably no significant differences in coloration exist between *P. rufiventris* (Fig. 9E, F) and *P. hermonensis*. Nevertheless, *P. rufiventris* and *P. hermonensis* are probably distinct species, because the basal and apical teeth of their lancets are apparently quite differently shaped: compare Fig. 9G, H with fig. 2 in Smith (1982).

Periclista rufiventris is apparently widely distributed in the Mediterranean: mostly in the East (Turkey, Cyprus, and Lebanon), but also as far West as approximately 4°E in Algeria (Chevin and Desmier de Chenon 1982; Chevin 1984; Pesarini and Turrisi 2003).

Discussion

The relatively poor state of our knowledge of the sawfly fauna of southern Europe and North Africa is partly the result of methodological deficits, or bias, in the way in which entomologists have collected there. Many of the sawfly specimens obtained in these regions belong to the larger, flower-visiting species, and there is a preponderance of species which occur in relatively open habitats and whose larvae feed on low-growing plants. Conversely, species attached to trees are probably under-represented. The *Pamphilius* species of the *alternans* group, all species of the *Pristiphora depressa* group, and all *Periclista* species are examples of taxa which use trees as larval hostplants. Their adults are mostly only observed on their hosts, and it follows that the best method of collecting them is to use a long-handled net. An alternative technique is to rear them from larvae, which would improve our knowledge of their biologies, which are also generally less well studied in southern Europe and North Africa than in central Europe. As noted above for *Halidamia affinis* and *Macrophya albicincta*, host plant species used in southern Europe can sometimes represent interesting alternatives to the hosts on which they are usually found further north.

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